

WHAT IS CLAIMED

1. An interferometer architecture comprising:
an input port to which an input optical beam is coupled;
a transmission output port from which a first output optical beam is coupled;
5 a reflection output port from which a second output optical beam is coupled; and
a multi-reflection cavity upon which said input beam is incident so as to be non
counter-propagating with either of said first and second output optical beams, and being
operative to cause multiple reflections therein of said input beam and produce therefrom
multiple order beams that define the composition of said first and second output optical
10 beams.

2. The interferometer architecture according to claim 1, wherein said multi-
reflection cavity comprises a plurality of parallel planar reflective surfaces, and wherein
said input beam is incident upon said multi-reflection cavity in a direction that is non-
orthogonal to said plurality of planar surfaces thereof.

3. The interferometer architecture according to claim 1, further including
first and second spatial filter elements respectively coupled in optical transport paths
of said first and second output optical beams.

4. The interferometer architecture according to claim 3, wherein said first
and second spatial filter elements are independently and selectively positionable relative
to optical transport paths of said first and second output optical beams, respectively, and

5 are configured to allow prescribed truncated portions of said multiple order beams thereof to be coupled therethrough to said transmission and reflection output ports.

5. The interferometer architecture according to claim 1, wherein said multiple order beams produced by said multiple reflections of said input beam in said multi-reflection cavity comprise a spatially spread series of multiple order beams.

6. The interferometer architecture according to claim 1, wherein said multi-reflection cavity comprises a resonant cavity for a Michelson Gires Tournois interferometer.

7. The interferometer architecture according to claim 1, wherein said multi-reflection cavity comprises a resonant cavity for a Fabry-Perot interferometer.

8. A method of spatially filtering an input optical beam to produce first and second optical output beams, comprising the steps of:

(a) coupling said input optical beam to a multi-reflection cavity so as to be non counter-propagating with either of said first and second optical beams, said multi-reflection cavity causing multiple reflections therein of said input beam and producing therefrom multiple order beams that define the composition of said first and second output optical beams; and

(b) spatially filtering said first and second output optical beams with first and second spatial filter elements, respectively, that are independently and selectively positionable relative to optical transport paths of said first and second output optical

beams, so as to allow prescribed truncated portions of said multiple order beams of said first and second output optical beams to be coupled therethrough.

9. The method according to claim 8, wherein said multi-reflection cavity comprises a plurality of parallel planar reflective surfaces, and wherein step (a) comprises directing said input beam upon said multi-reflection cavity in a direction that is non-orthogonal to said plurality of planar surfaces thereof.

10. The method according to claim 8, wherein said multiple order beams produced by said multiple reflections of said input beam in said multi-reflection cavity comprise a spatially spread series of multiple order beams.

11. The method according to claim 8, wherein step (b) comprises independently and selectively positioning said first and second spatial filter elements in said optical transport paths of said first and second output optical beams, so as to spatially define said prescribed truncated portions of said multiple order beams of said first and second output optical beams in accordance with a prescribed passband vs. stopband transmission profile therefor.

12. The method according to claim 8, wherein said multi-reflection cavity comprises a resonant cavity for a Michelson Gires Tournois interferometer.

13. The method according to claim 8, wherein said multi-reflection cavity comprises a resonant cavity for a Fabry-Perot interferometer.

14. A method of spatially filtering an input optical beam to produce first and second optical output beams which conform with a prescribed passband vs. stopband transmission profile comprising the steps of:

(a) coupling said input optical beam to a multi-reflection cavity so as to be non counter-propagating with each of said first and second optical beams, said multi-reflection cavity causing multiple reflections therein of said input beam and producing therefrom spatially spread apart multiple order beams that define the composition of said first and second output optical beams; and

(b) coupling said first and second output optical beams through first and second adjustably positionable spatial filter elements, respectively; and

(c) independently and selectively adjusting said first and second spatial filter elements relative to optical transport paths of said first and second output optical beams, and thereby truncate prescribed portions of said spatially spread apart multiple order beams of said first and second output optical beams in accordance with said prescribed passband vs. stopband transmission profile.

15. The method according to claim 14, wherein said multi-reflection cavity comprises a plurality of parallel planar reflective surfaces, and wherein step (a) comprises directing said input beam at an acute angle upon said multi-reflection cavity in a direction that is non-orthogonal to said plurality of planar surfaces thereof.

16. The method according to claim 14, wherein said multiple order beams produced by said multiple reflections of said input beam in said multi-reflection cavity comprise a spatially spread series of multiple order beams.

17. The method according to claim 14, wherein said multi-reflection cavity comprises a resonant cavity for a Michelson Gires Tournois interferometer.

18. The method according to claim 14, wherein said multi-reflection cavity comprises a resonant cavity for a Fabry-Perot interferometer.